

Application No.: 10/761,101  
Attorney Docket No. 1999U026.RE.US  
Final Response dated: June 24, 2008  
Reply to Office Action: August 22, 2008

### **REMARKS**

Reconsideration of the application is respectfully requested.

Claims 1, 7, 8, 9, 10, 12, 15, 17, 20, and 21 have been amended, relative to the original patent U.S. Patent No. 6,274,684 (US-684). Claims 2-6, 11, 13, 14, 16, 18, and 22-48 have been cancelled.

New Claim 49 has been added.

Claims 1, 7-10, 12, 15, 17, 19-21, and 49 remain.

In addition to amendments previously discussed, Claim 1 has been amended in the instant response to further clarify that R<sup>1</sup> and R<sup>2</sup> are alkylene groups, consistent with the Actions suggestion. Support for this amendment may be found, for example, at Col. 3, lines 56-57 of US-684.

No new matter has been added.

#### **Claim Rejections under 35 U.S.C. § 112, second paragraph**

Claim 1 has been rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Examiner suggests that R<sup>1</sup> and R<sup>2</sup> are alkylene groups and not alkyl groups as previously recited. While Applicants believe the term alkyl group is appropriate, in the interest of furthering prosecution, Applicants have amended Claim 1 to recite an alkylene group in place of an alkyl group represented by R<sup>1</sup> and R<sup>2</sup>. Withdrawal of the rejection is respectfully requested.

#### **Claim Rejections under 35 U.S.C. § 102**

Claims 1, 7-10, 12, 15, 17, 19-21, and 49 have been rejected under 35 U.S.C. § 102(b) as being anticipated by JP 10-330412 to Sigimura et al. (JP-412), as evidenced by the English translation thereof for the reasons stated on pages 3-6 of the Action. Applicants respectfully disagree.

Application No.: 10/761,101  
 Attorney Docket No. 1999U026.RE.US  
 Final Response dated: June 24, 2008  
 Reply to Office Action: August 22, 2008

JP-412 discloses at Page 4, claim 1, an olefin polymerization catalyst that characteristically comprises

(A) a transition metal compound from Group 4 of the Periodic Table that contains a ligand that has the cyclopentadienyl skeleton;

(B) a transition metal amide compound represented by general formula (I) or (I-1)



wherein

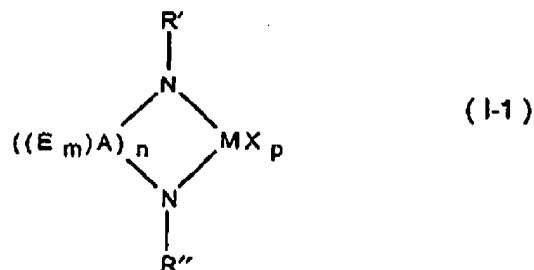
M is a transition metal atom from Groups 3-6 of the Periodic Table,

j is the valence of the transition metal atom M,

k is an integer from 1 to j,

each R is independently selected from hydrocarbyl and halogenated hydrocarbyl wherein two of the groups R may be connected to each other to form a ring, and

X represents the hydrogen atom, halogen atoms, C<sub>1</sub> to C<sub>20</sub> hydrocarbyl, C<sub>1</sub> to C<sub>20</sub> halogenated hydrocarbyl, an oxygen-containing group, a sulfur-containing group, or a silicon-containing group, wherein when j-k >= 2 the X's may be the same as each other or may differ from one another,



wherein

Application No.: 10/761,101  
Attorney Docket No. 1999U026.RE.US  
Final Response dated: June 24, 2008  
Reply to Office Action: August 22, 2008

M represents a transition metal atom from Groups 3-6 of the Periodic Table, R' and R'' are each independently selected from the hydrogen atom, hydrocarbyl, halogenated hydrocarbyl, organosilyl groups, and substituents that contain at least 1 element selected from nitrogen, oxygen, phosphorus, sulfur, and silicon,

m is an integer from 0 to 2,

n is an integer from 1 to 5,

A is an atom from Groups 13-16 of the Periodic Table, wherein when  $n \geq 2$  the plurality of said A's may be the same as each other or may differ from one another, and

E is a substituent that contains at least 1 element selected from carbon, hydrogen, oxygen, halogen, nitrogen, sulfur, phosphorus, boron, and silicon, wherein when a plurality of groups represented by E are present said plurality of groups represented by E may be the same as each other or may differ from one another and two or more groups represented by E may be connected to each other to form a ring; and

(C) at least one compound selected from

(C-1) organometal compounds,

(C-2) organoaluminumoxy compounds, and

(C-3) compounds that react with the aforesaid transition metal compound (A) or transition metal amide compound (B) to form an ion pair.

JP-412 is thus directed to a bidentate catalyst. JP-412 fails to disclose or suggest Applicants' recited tridentate ligated hafnium catalyst compound. Accordingly, JP-412 fails to disclose or suggest the subject claims. Applicants respectfully request that the rejection be withdrawn.

Application No.: 10/761,101  
Attorney Docket No. 1999U026.RE.US  
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Claims 1, 7-10, 12, 15, 17, 19-21, and 49 have been rejected under 35 U.S.C. § 102(b) as being anticipated by JP 10-330416 to Sigimura et al. (JP-416) for the reasons stated on pages 6-8 of the Action. Applicants respectfully disagree.

JP-416 has an almost identical disclosure to that of JP-412. Likewise, JP-416 fails to disclose Applicants' recited tridentate ligated hafnium catalyst compound. The structures shown above in JP-412 numbered paragraphs (0104), (0112), and (0140) are disclosed in identical fashion in JP-416 in numbered paragraphs (0077), (0085), and (0113) respectively.

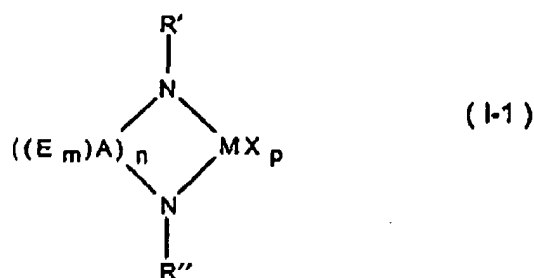
Accordingly, JP-416 also fails to disclose or suggest the subject claims. Applicants respectfully request that the rejection be withdrawn.

Claims 1, 7-10, 12, 15, 17, 19-21, and 49 have been rejected under 35 U.S.C. § 102(b) as being anticipated by WO 98/34961 to Imuta *et al.*, and under 35 U.S.C. § 102(e) as being anticipated by the U.S. equivalent to WO 98/34961, namely U.S. Patent No. 6,255,419 to Imuta *et al.* (collectively referred to as Imuta) for the reasons stated on pages 8-11 of the Action. Applicants respectfully disagree.

The Imuta disclosures are directed to transition metal amide compounds having a bidentate ligand. In fact, the Imuta disclosure is similar in nearly all respects to JP-412 and JP-416, and Imuta and JP-412 and JP-416 have the same common inventors. Similar to the above discussed references, Imuta fails to disclose or suggest Applicants' recited tridentate ligated hafnium catalyst compound. The above referenced structures of JP-412 at numbered paragraphs (0104) and (0140) are disclosed in identical fashion in Imuta at Col. 47, lines 20-30 and at Col. 58, lines 45-60, respectively. Accordingly, Imuta also fails to disclose or suggest the subject claims. Applicants respectfully request that the rejection be withdrawn.

The Action points to JP-412, page 33, 0098 for disclosure directed to the term A in the following figure being nitrogen. :

Application No.: 10/761,101  
 Attorney Docket No. 1999U026.RE.US  
 Final Response dated: June 24, 2008  
 Reply to Office Action: August 22, 2008



The reference discloses:

“(0097)  $m$  is an integer from 0 to 2 while  $n$  is an integer from 1 to 5.  $A$  represents an atom from Groups 13 to 16 of the Periodic Table and can be specifically exemplified by boron, carbon, nitrogen, oxygen, silicon, phosphorus, sulfur, germanium, selenium, and tin wherein carbon and silicon are preferred. The plurality of  $A$ ’s present when  $n$  is greater than or equal to 2 may be the same as each other or may differ from one another.

(0098) the group  $E$  is a substituent that contains at least one element selected from carbon, hydrogen, oxygen, halogen, nitrogen, sulfur, phosphorus, boron, and silicon. When a plurality of groups represented by  $E$  are present, said plurality of groups represented by  $E$  may be the same as each other or may differ from one another and two or more groups represented by  $E$  may be connected to each other to form a ring.”

Accordingly, JP-412 fails to disclose Applicants’ recited tridentate ligated hafnium catalyst compound.

The Action further points to pages 38 and 49 of the reference for disclosure directed to the alkylene groups between the disclosed  $A$  and nitrogen atoms. Page 38 of JP-412 merely discloses:

“(0122)  $m$  is an integer from 0 to 2, while  $n$  is an integer from 1 to 5. The substituent  $A$  is the same as  $A$  in the preceding general formula (I-1) and is preferably a

Application No.: 10/761,101  
Attorney Docket No. 1999U026.RE.US  
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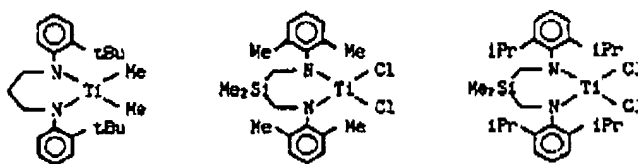
carbon atom or silicon atom. When  $n > 2$ , the plurality of A's may be the same as each other or may differ from one another.

(0123) The group E is the same as E in the preceding general formula (I-I) and is preferably a substituent that contains at least one element selected from carbon, hydrogen, nitrogen, and silicon. When a plurality of groups represented by E are present said plurality of groups represented by E may be the same as each other or may differ from one another and two or more groups represented by E may be connected to each other to form a ring.

(0124) The bridging group ((Em)A)<sub>n</sub> that is bonded to the two nitrogen atoms can be specifically exemplified by the same groups as provided above. p is an integer from 0 to 4."

Thus, the reference fails to disclose or suggest, among other things, the subject claims' recitation of the tridentate ligated hafnium catalyst compound.

Likewise, Page 49 of JP-412 discloses, *inter alia*, the following figures:



At best, JP-412 discloses a methyl group between the N and the Si. However, JP-412 fails to disclose or suggest, among other things, the subject claims' recitation of the tridentate ligated hafnium catalyst compound.

Accordingly, JP-412, and the essentially similar references JP-416 and Imuta, each fail, either alone or in combination, to disclose or suggest Applicants' recited

Application No.: 10/761,101  
Attorney Docket No. 1999U026.RE.US  
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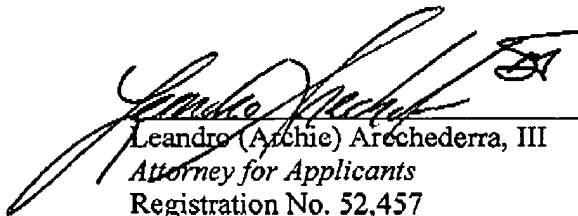
tridentate ligated hafnium catalyst compound. As such, the references cannot be found to anticipate nor render obvious the subject claims.

Applicants respectfully request that all rejections be withdrawn and solicit a prompt notice of allowability. In the alternative, Applicants invite the Office to telephone the undersigned attorney if there are any other issues outstanding which have not been presented to the Office's satisfaction.

Respectfully submitted,

August 22, 2008

Date



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